

PATENT CLAIMS

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1. Process for producing mouldings by injection moulding,

the steps in the process being

A) Melting a mixture made from

a) a (meth)acrylate copolymer composed of from 40 to 100% by weight of free-radical-polymerized C₁-C₄-alkyl esters of acrylic or methacrylic acid and from 0 to 60% by weight of (meth)acrylate monomers having an anionic group in the alkyl radical, where the copolymer comprises

b) from 0.1 to 3% by weight of a release agent,

and, where appropriate, the mixture may comprise

c) from 0 to 50% by weight of a drier,

d) from 0 to 30% by weight of a plasticizer,

e) from 0 to 100% by weight of additives or auxiliaries,

f) from 0 to 100% by weight of an active pharmaceutical ingredient,

g) from 0 to 20% by weight of another polymer or copolymer,

where the amounts given for components b) to g) are based on the (meth)acrylate copolymer a) and

the mixture prior to melting has a content of more than 0.5% by weight of low-boiling constituents with vapour pressure of at least 1.9 bar at 120°C,

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B) Devolatilizing the mixture in the thermoplastic state at temperatures of at least 120°C, thereby lowering to not more than 0.5% by weight the content of the low-boiling constituents with vapour pressure of at least 1.9 bar at 120°C,

C) Injecting the molten and devolatilized mixture into the mould cavity of an injection mould, the temperature of the mould cavity being below the glass transition temperature of the (meth)acrylate copolymer by at least 10°C, cooling the molten mixture, and removing the resultant moulding from the mould.

2. Process according to Claim 1, characterized in that the devolatilizing step b) takes place by way of extrusion drying by means of an extruder with devolatilizing section, or by way of an injection moulding plant with a vent in the injection moulding cylinder upstream of the injection mould.

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3. Process according to Claim 1 or 2, characterized in that the (meth)acrylate copolymer comprises, as (meth)acrylate monomer having an anionic group in the alkyl radical, from 1 to 50% by weight of methacrylic acid.

4. Process according to one or more of Claims 1 to 3, characterized in that the mixture comprises from 0.5 to 25% by weight of plasticizer.

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5. Injection moulding which can be produced by a process according to one or more of Claims 1 to 4.

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6. Moulding according to Claim 5, characterized in that its impact strength to ISO 179 is at least 5 kJ/m².

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7. Moulding according to Claim 5 or 6, characterized in that it is a capsule, part of a capsule, or part of a dosage unit.

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8. Moulding according to Claim 5 or 6, characterized in that it comprises an active pharmaceutical ingredient.

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9. Use of a moulding according to one or more of Claims 5 to 8 to contain or carry an active pharmaceutical ingredient.

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B) Devolatilizing the mixture in the thermoplastic state at temperatures of at least 120°C, thereby lowering to not more than 0.5% by weight the content of the low-boiling constituents with vapour pressure of at least 1.9 bar at 120°C,

C) Injecting the molten and devolatilized mixture into the mould cavity of an injection mould, the temperature of the mould cavity being below the glass transition temperature of the (meth)acrylate copolymer by at least 10°C, cooling the molten mixture, and removing the resultant moulding from the mould.

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